Department of Health and Social Security
and the Welsh Office

Extract from:

Memorandum on

The Control of Viral Hæmorrhagic Fevers

SUMMARY

March 1986

Memorandum on the Control of Viral Haemorrhagic Fevers

Summary

The diseases

Apart from the handling of the viruses in the laboratory, public health concern in the UK is limited to those haemorrhagic fevers that are capable of man-to-man transmission. These are Lassa, Marburg, Ebola and Congo/ Crimean haemorrhagic fevers:

1. Lassa fever has been recognized since 1969 and is normally transmitted to man by urine from the infected multimammate rat in Africa, entering through the skin or mucous membranes. In Africa clinically identified cases show a high mortality but sub-clinical and mild undetected infection also occurs.

2. Marburg disease was described in 1967 following a European outbreak transmitted by tissue-cultures from African green monkeys caught in Uganda and from subsequent man-to-man contact.

3. Ebola is an antigenically distinct variant of Marburg virus but outbreaks of both diseases in central Africa have yielded no known source or a natural reservoir.

4. Congo/Crimean haemorrhagic fevers arise from similar viruses that are widespread in Africa, Western Asia and in the USSR. Transmission is usually by tick-bite and man-to-man spread has only been shown to result from contact with infected blood.

These diseases are notifiable in the United Kingdom and have incubation periods up to 21 days. In the absence of a natural animal reservoir, the virus is spread by contact with infected blood, urine or semen. The possibility of airborne spread in special circumstances cannot entirely be ruled out. Evidence suggests that person-to-person spread can be controlled by good isolation, and laboratory spread by high-containment techniques. The onset of illness is insidious with fever, malaise and headache. Pyrexia may last 16 days with temperatures up to 41 ^{o}C.

Assessment of suspect cases

Firm diagnosis is not always possible but both the clinical and the epidemiological evidence need to be considered for any patient presenting with undiagnosed fever within 3 weeks of return from endemic areas of Africa. Malaria is a common confounding diagnosis and once a blood specimen has been taken, urgent treatment may be necessary without awaiting the result of the examination. In a patient who does not improve on anti-malarial therapy, a diagnosis of VHF should be considered even if there are malarial parasites in the blood. Typhoid fever is also a common condition to be eliminated.

The **level of suspicion of VHF** will determine the management of a patient with *unexplained pyrexia* and this should be graded as **strong, moderate or minimal:**

Strong suspicion

Criteria:

(a) A patient who has left a known endemic area, urban or rural, in the previous 3 weeks (and particularly health-care staff from rural hospitals);

or (b) contacts of confirmed cases;

or (c) laboratory workers who handle VHF viruses.

Action:

(a) Admit patient to a High Security Infectious Disease Unit (HSIDU) using specific ambulance precautions for this level of suspicion;

(b) inform the Medical Officer for Environmental Health (MOEH) who should in turn inform the PHLS Communicable Disease Surveillance Centre (CDSC) and ensure identification and surveillance of close contacts;

(c) take blood and urine specimens with strict care (normally in a HSIDU) and send to high security laboratory using high risk precautions and labelling.

Moderate suspicion

Criteria:

(a) A patient who has left tropical Africa in the previous 3 weeks, but from a rural area or small town not generally considered endemic;

and (b) where the onset and course of the fever are consistent with VHF.

Action:

(a) Admit patient to approved intermediate security bed or to HSIDU, ambulance precautions to be advised by the admitting infectious disease physician;

(b) review level of suspicion carefully if illness proves more consistent with VHF or if examination for malarial parasites proves negative;

(c) transfer patient to HSIDU if review indicative;

(d) inform MOEH who should in turn inform CDSC and ensure identification of contacts but surveillance not necessary;

(e) take blood and urine specimens with precautions as for strong suspicion.

Minimal suspicion

Criteria:

(a) A patient who has left tropical Africa in the previous 3 weeks but from a major city where the risk of VHF is considered negligible.

Action:

(a) If there is no immediate threat to life and malaria has been excluded, the patient may be confined at home but normally he should be admitted to a standard isolation bed in a District General Hospital (DGH) or infectious diseases hospital; ambulance transport must follow the specific guidance in the Memorandum;

(b) inform the MOEH who may take the precaution of identifying close contacts although no surveillance is indicated;

(c) handle blood and urine specimens with precautions as for strong suspicion until the possibility of infection with a dangerous pathogen has been eliminated.

General precautions

Patients with unexplained pyrexia frequently present at Accident & Emergency Departments of District General Hospitals. Where there is a history of a recent stay in tropical Africa, the patient should be admitted to a single room and nursed with standard isolation techniques pending transfer. In this circumstance the level of suspicion may not be fully assessed until the patient is seen by an infectious diseases physician after admission to his unit and malaria has been excluded.

Individual responsibilities

It is the clinician's responsibility to notify all those involved of the level of suspicion or of any change in this level. In particular, the ambulance service will require specific advice on the precautions to be taken in transporting the patient and on disinfection afterwards. However, statutory responsibility for exercising control of the incident rests with the Proper Officer of the local authority who is normally the MOEH. These individual duties are listed for reference but it is important that all those who may become involved in the incident be alerted (either by the clinician or by the MOEH as appropriate) eg staff at any port of entry, general practitioners, domiciliary nursing staff, crematoria.

Action by clinician-in-charge of admitting unit

(1) Inform the hospital administration, nursing services, pathology department etc of intention to admit case of VHF;

(2) liaise with the ambulance service on transfer arrangements for the patient;

(3) inform MOEH of admission and, if not already done, make formal notification of the disease;

(4) arrange with appropriate high-security laboratory for the submission of specimens;

(5) make arrangements with MOEH for transport of specimens;

(6) notify all involved as above if level of suspicion is changed and recheck modified action necessary.

Action by Medical Officer for Environmental Health

(1) Ensure in conjunction with the clinician-in-charge that the suspected case of VHF is admitted to hospital accommodation appropriate for the level of suspicion;

(2) identify all close contacts of the suspected case and inform other MOsEH that may thus become involved;

(3) when the level of suspicion is moderate or greater, inform CDSC, the local PHLS laboratory, the Control of Infection Officer of the admitting hospital, the District Medical Officer (DMO), the Regional Medical Officer (RMO), or responsible community physician;

(4) assist with arrangements to transport specimens to the laboratory and identify all those involved in handling these specimens;

(5) ensure that all those involved know the level of suspicion and all those likely to have contact with the patient have been advised on protective clothing etc;

(6) participate in surveillance of contacts as agreed with CDSC and other MOsEH involved;

(7) arrange for terminal disinfection of the rooms occupied by the patient and supervise body disposal if necessary and if the diagnosis of VHF is confirmed;

(8) be responsible for dealing with local press enquiries in conjunction with CDSC and DHSS (in Wales the Welsh Office).

Action by the ambulance service

(1) Take action on a request for transport of a suspected case of VHF;

(2) seek advice from the admitting clinician on the level of suspicion and on any specific patient needs;

(3) see that standing orders are obeyed and the specific precautions set out in the Memorandum;

(4) arrange subsequent disinfection of the ambulance with the MOEH and inform him of those crew members who were in contact with the patient and may need surveillance.

Identification and surveillance of contacts

Close contacts are defined as individuals who have:

(a) had direct contact with the patient's blood, urine or secretions including contact with soiled fomities;

or (b) cared for the patient during the illness or handled specimens from the patient (other than in a high-security laboratory);

or (c) had direct contact with the corpse of a VHF victim, either proven or on moderate to strong suspicion, before the coffin was sealed.

Evidence exists that only close contacts of a patient with VHF are at risk of contracting the disease and such contacts will not be infectious before onset of symptoms. They should be kept under daily surveillance for 21 days from the last date of exposure to infection. Work and movement need not be restricted but body temperature and the presence of symptoms should be recorded daily. Those with pyrexia above 38°C should be confined at home and CDSC must be informed if such fever persists beyond 24 hours, or consulted if any problem arises.

Other contacts are those who have shared public transport etc with the patient or have entered potentially contaminated rooms before disinfection but after the patient had been removed. The risk of infection in such cases is minimal and it is normally not necessary to identify such contacts. In exceptional circumstances, and then only after consultation with CDSC, such individuals may be identified and advised to consult their doctor if they feel unwell in the ensuing 21 days from exposure.

Contact identification and surveillance are the responsibility of the MOEH who may consult CDSC as outlined above.

Laboratory specimens

Normally arrangements for taking laboratory specimens will be under the control of the infectious diseases consultant in charge of the patient. Such specimens for the laboratory diagnosis of VHF must be sent to the PHLS Viral Zoonoses Laboratory at the Central Public Health Laboratory, Colindale, London NW9 5HT (telephone 01-200-4400) and this laboratory will give advice on packing and transport. Every effort should be made to avoid external contamination of the specimen container which should be disinfected externally before dispatch. The specimen and the request form should be packed separately and a "high-risk" label attached to both packages. The laboratory should be warned in advance of the level of suspicion and transport effected by a responsible person.

It may be necessary to retrieve a specimen from a local laboratory when suspicion of VHF arises and this task must fall to an identified individual such as the Control of Infection Officer. Specimens must be made safe, disinfection applied and contacts identified in concert with the MOEH.

International repatriation of suspected VHF

Although cases of VHF occurring abroad are in general best treated locally, circumstances may arise where it is desirable to bring the patient to the UK. To minimize the risk to those attending the patient and to the public health in the UK, air evacuation using a portable isolator is recommended and this should be initiated by the Foreign and Commonwealth Office in the case of a British national.

Disinfection

Congo/Crimean viruses are extremely labile and do not survive outside the body. Lassa virus does not survive long in dried secretions but little is known of the survival of Ebola and Marburg viruses. They are all sensitive to lipid solvents, phenolic disinfectants and hypochlorites which should be used as appropriate for the materials being disinfected. The method and type of disinfectant are matters for the MOEH.

Fatal termination

Post-mortem examination should be avoided on the ground of unwarranted risk but where essential, limited sampling of urine, CSF, blood etc may be undertaken to establish the diagnosis. Such sampling should be carried out only after consultation with appropriate specialists.

For disposal of **a body in an isolator**, it should be transferred through the port of the isolator into a plastic bag which should be heat-sealed before being placed in a robust coffin with sealed joints. The coffin should be disinfected externally with phenolic disinfectant and kept in a separate store until cremation or burial.

When the **body is not in an isolator**, staff should wear full protective clothing (as described in the Memorandum) with high-performance respiratory protection. The body should be placed in a plastic bag which should be sealed and externally disinfected before being placed in a coffin as above.

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